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Second Meeting of the Advisory Group
of Industrial and Technological Information Bank (INTIB)

Vienna, Austria, 1-3 October 1986

ELEMENTS OF INTIB MEDIUM-TERM PROGRAMME*

Prepared by the
UNIDO Secretariat

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Summary

This background paper starts with a historical review of INTIB activities since it became operational in 1980, after a pilot project during 1977-1978, and up to the present. It describes the various activities undertaken under INTIB and provides statistical data based on a recent review of its activities.

It moves on to delineate the ongoing reorientation of INTIB activities with particular emphasis on networking as its main modus operandi, while maintaining a mix of delivery systems to suit the variety of prevailing conditions in developing countries. It also puts forward some suggestions for new activities that are considered appropriate in consolidating the fulfillment of INTIB's mandate. Together, the reorientation and new activities form the main elements of a medium term programme for INTIB which was called for by the Advisory Group in its first meeting last year.

The second meeting of the Advisory Group is invited to review these elements of the action programme and recommend appropriate elaborations, additions or changes to enhance its effectiveness.

I - Review of Past Activities

1. In March 1975, the Lima Declaration and Plan of Action (Second General Conference of UNIDO) urged the Executive Director of UNIDO to establish the Industrial and Technological Information Bank (INTIB). In December 1975, the UN General Assembly in its Resolution 3507(XXX) reaffirmed the "need to enable developing countries to have access to specific information on advanced and other technologies requested by them, as well as on the new uses of existing technologies, new developments, possibilities of adapting them to local needs, and ... to select technologies which meet their requirements." In this context the Executive Director of UNIDO was requested to establish INTIB.

2. A pilot operation covering four industrial sectors (agricultural machinery and implements, iron and steel, fertilizer industry and agro-industry) lasted for a period of 18 months (July 1977 - December 1978). A review meeting, held in February 1979, recommended continuation of INTIB activities. INTIB became operational in 1980.

3. The main objectives of INTIB are to facilitate and accelerate the flow of relevant information to INTIB users in developing countries for the proper selection of technologies and equipment in 20 selected industrial sectors (see Annex I). For this purpose it seeks, on the one hand, to maintain the flow of such information from a wide variety of in-house and external sources. On the other hand, it seeks to develop linkages and communications with end-users in developing countries, and to enhance their capabilities in the systematic handling of industrial information, based on needs, and to promote its availability and utilisation in decision-making processes in industrial development, of which technology selection forms an important part. Sound selection calls for two pre-requisites, viz. information on technology alternatives, and ability to choose wisely from amongst these alternatives.

INTIB Activities

4. INTIB activities fall under one of two main categories, viz. industrial inquiry services, and positive dissemination of industrial information. The following is a brief review of INTIB recent activities in each category.

A - Industrial Inquiry Services

5. The number of substantive inquiries received during the period 1982-1985 averaged about 1,300 per year. In answering these inquiries, information came from in-house sources as well as 300 network correspondents and on-line databases. The results of an analysis of these inquiries for 1985 are summarised in Annex 2.

B - Positive Dissemination of Information (*)

6. This has taken a variety of forms, viz.:

(a) Technology Information Profiles: these provide industrial and technological information on technological alternatives in priority sectors as indicated by inquiries from developing countries. Three such profiles have been prepared during 1985 and one more is currently under preparation.

(b) Information Packages: Five such packages have been prepared during 1985 and one more is currently under preparation.

(c) Technical Memoranda: These are joint publications with ILO on technology choices addressed specifically to helping small and medium industries in the choice of the most appropriate technologies. Five memoranda have been published and one is under preparation.

(d) "How to Start Manufacturing Industries" Series: These are 2-4 page profiles giving brief descriptions of manufacturing processes, machinery and equipment as well as labour, investment and production costs. They are intended to stimulate project promoters and sponsors in developing countries and to help them identify suitable products for local manufacture. 400 profiles were published in 1985 and a similar number is in the pipeline.

(*) Samples of the publications mentioned hereunder are available in the conference room.

(e) Development and Transfer of Technology (DTT) Series: These are publications dealing with technology issues such as technology policy, strengthening national technological capabilities, technology acquisition, surveys of the state of the art in specific industrial technologies. A total of 22 have been published so far. This has proved to be a very popular series.

(f) Monitors of Technological Advances: These are periodicals addressed to specialists as well as policy-makers keeping them abreast of the quick pace of development in microelectronics, genetic engineering and biotechnology, and materials technology. The activity started in 1982 with the Microelectronics Monitor. The monitors are currently very much in demand.

(g) TIES Newsletter: This has now become the accepted venue for exchanging experiences and news amongst members of the Technology Information Exchange system (TIES), as well as many others, on matters relating to technology acquisition.

(h) Industrial Development Abstracts: This data base now includes over 15,000 entries, most of which have been published and widely distributed. Some 12,000 requests for approximately 150,000 documents and publications have been processed in 1985 alone.

(i) Directories: Seven such directories have been published during the period covering industrial and technological research institutions and information services and systems in specific fields. Some 2,000 - 3,000 copies have been distributed. Five new volumes are under preparation.

(j) UNIDO Newsletter: This is a monthly publication sent to more than 36,000 addresses. Although this is a general news bulletin of UNIDO as a whole, it has a regular section providing information on resources sought by developing countries and resources available to them from industrial enterprises worldwide. Most of these relate to technology acquisition.

(k) Calendar of Meetings, Fairs, Exhibitions and Conferences: A tri-yearly bulletin informing entrepreneurs, investors, industrialists, planners and technical personnel in developing countries of opportunities to obtain information on equipment and technologies not readily available elsewhere.

C - Capability Building in Developing Countries

7. INTIB has been keenly aware of the need to establish or enhance national industrial information centres and services, as a decisive factor in fulfilling its objectives. Its activities in this area has taken several forms, viz:

(a) Advisory Missions: by staff members and consultants. These have covered Latin America, Eastern Europe, South East Asia, and Africa in response to requests from member states seeking advice on strengthening their industrial information handling capabilities.

(b) Guidelines: Three sets of guidelines have been published, two on the formulation of national industrial information policies, and the third on the establishment or redesign/strengthening of industrial-technological information centres, including the selection of EDP hard and software.

(c) Training: This has taken a variety of forms ranging from short visits to INTIB in Vienna, to longer training opportunities in-house, abroad or in the member states themselves. One regular programme that has been going on for the last 16 years is that organised by VINITI in Moscow for industrial information officers. Individual training on the use of INTIB data bases has been provided upon request, to TIRDO (Tanzania) and AIDO (Arab States). An official of the Ministry of Industry of the Republic of Korea spent six months familiarising himself with INTIB operations and its different computer databases. Ten African states participated in an Industrial Development Decade for Africa (IDDA) project (see paras. 22, 23). A joint INTIB/TIES training workshop was held at the ARCT (Dakar) on the use of PC's and communication with INTIB. Specialists from the DPRK were trained in on-line satellite communication with INTIB via VINITI.

(d) Technical Assistance: The INTIB concept is now incorporated in UNIDO technical assistance projects, as a means of establishing/ strengthening INTIB linkages with information centres/systems in developing countries and ensuring continuous interaction.

Delivery Systems

8. So far INTIB has used three means of responding to inquiries and requests for information and publications. Letters with enclosures and printed matter of up to 2 kilos are sent by airmail. Other material up to 17 kilos is pouched by air, either directly or via UN headquarters in New York. Time of delivery by pouch is reported to range between 7-10 days. Heavier consignments are divided into parcels, each of 5 kilos and sent by surface mail. Surface mail is reported to take 2-3 weeks in the case of Egypt and the Gulf Region and up to 5-7 weeks for delivery to India, Brazil, Tanzania and Colombia. This raises a number of issues related to the proper balance between speed of delivery and cost in a variety of situations as regards the nature and purpose of the inquiry, its content and the type of inquirer and his needs.

Resources (*)

9. Manpower resources for the INTIB unit itself consist of a Chief of Section, 4 Professionals and 5 Research Assistants (Information Clerks) handling inquiries by subject. INTIB activities are supported by work carried out by one professional and one information clerk for computerisation activities, a similar number for abstracting, indexing and processing of the "Industrial Development Abstracts". Two more Professionals and five Research Assistants work on a part-time basis on UNIDO Newsletter and other publications, while 3 others work on the "Monitors".

10. As regards EDP hardware INTIB now has four unintelligent terminals connected to the IBM mainframe in the house. INTIB can also access foreign databases in the passive mode. The mainframe applications currently in use are the Industrial Development Abstracts (IDA), and the Online Information Key (LINK).

(*) These resources may be compared with the significantly higher resources available for information activities in other UN organisations, e.g. UNESCO, FAO, ILO, IAEA.

Review and Planning Activities

11. The setting up of an INTIB Advisory Group now provides a continuing mechanism for reviewing past experiences and proposed new qualitative and quantitative developments of its operation. Its meetings are presented with statistical information and end-user reactions for review of the results of the periodic evaluation of INTIB operations which is presently a built-in mechanism in the system (see annexes). In fact, the recommendations of the first group meeting held last year have provided the main guidelines for reorientation and development of INTIB activities over the last year.

12. Furthermore, UNIDO commisioned the preparation of an overall review of its industrial information activities and the drafting of a medium term programme to enable INTIB to make an orderly transition to more effective operations that would keep in step with developments in information technology and meet the needs of developing countries for the next five years. The report (*) reviewed INTIB's current procedures and operations and recommended specific measures for improvement, including linkages with other data bases in UNIDO headquarters.

13. Another development since the conclusion of the first Advisory Group Meeting is the formation of an in-house task force to study, plan, and monitor INTIB operations, reorientation and development projects, and to prepare periodic evaluation reports.

(*) Adam Wysocki: UNIDO Industrial Information: Medium Term Programme, Vienna, January 1986.

II - Reorientation of INTIB Activities

Nodes

14. Two new developments have changed the information scene over the last few years almost beyond recognition. These are the so-called information "explosion" and the dramatic developments in information handling and communication technologies. Interaction between INTIB unit in Vienna and its end-users in real time is now feasible technically and economically. Furthermore, UNIDO's Industrial Information Section cannot hope to cover fully the ever-increasing flows of information and demands for information from developing countries. To this extent networking and the formation of national or specialized nodes become a necessity. While formal national focal points (as in the case of INIS or AGRIS) will be useful in collecting information from countries and supplying it to UNIDO, these cannot be established in all countries, because national institutions with adequate capabilities do not exist everywhere. Since UNIDO has to cover both those countries with a strong information infrastructure, and equally, many others without an adequate information base, INTIB will have to resort, at least in the medium-term, to a combination of delivery mechanisms, such as national focal points, designated by agreement with national governments; nodes cooperating on an informal basis; and direct supply of information to developing countries. Within this combination of modii operandi more and more emphasis needs to be given to identification and strengthening of national information institutions which can process inquiries and help INTIB do the job, particularly as demand on its services increases in the future.

15. Since 1985, efforts have been made for reorienting the Industrial Inquiry Service away from a single mode of a conventional one-way service system, directly receiving inquiries from inquirers and providing them with answers directly, to a de-centralized system involving "centres of excellence" that can provide a supplementary reply to an inquirer in addition to INTIB's direct reply. In order to expand INTIB's network and identify "centres of excellence" that could be potential INTIB national nodes/focal points, INTIB sent out in 1984, 1,500 questionnaires to Industrial and Technological Information Service Organizations, Chambers of Commerce, Federations of Industry, National Productivity Centres, Research and Development Institutions, Engineering and Consulting Firms, Development Banks, Technology Transfer Centres, Technology Promotion Agencies, etc. So far, 750 replies

have been received. On the basis of an analysis of these replies, 400 had been selected to be actively engaged in supporting the Industrial Inquiry Service at a national or regional level. INTIB proposed to them an"Industrial Inquiry Exchange System" to be operated for a trial period of one year. UNIDO would redirect some industrial inquiries received fro inquirers to the INTIB national nodes/focal points, specialized in the field, for a supplementary reply to the inquirer directly with a copy to Vienna. At the same time, INTIB nodes will continue to send to INTIB headquarters inquiries they are unable to answer due to lack of information, expertise, or capabilities. INTIB will reply to the inquirers without financial implications. As far as they act as INTIB correspondents, the national nodes/focal points are remunerated for the inquiries they process.

16. So far, out of the 400 selected organisations, replies have been received from 130, in 60 countries indicating their agreement with the proposals. The industrial inquiry exchange system with INTIB nodes has been in operation since September 1985. (Annex 3 gives an analysis of operations over the last year)

17. The following general considerations are considered as relevant in elaborating the form and content of the activities of the nodes:

(a) The nodes could be specialized nodes in particular sectors, or nodes at the country level dealing with technological information or technology in general. They could serve one or more of the following functions:
   (i) as a national focal point;
   (ii) as a referral point;
   (iii) as a source of information or correspondent for INTIB;
   (iv) it may eventually have on-line connections with INTIB.

(b) On the basis of experience gained in a pilot operation, the general working of INTIB-nodes-relationship and the effectiveness of individual nodes will be assessed and the results of the evaluation made available to the next INTIB Advisory Group Meeting. Suggestions by the Advisory Group on the methods of data collection on performances and methods of evaluation are invited.

(c) Based on the assessment, a short paper on INTIB-nodes-relationship and the "rights and duties" of both parties will be prepared and made available for dissemination. The Advisory Group is invited to indicate what they consider as the main elements of a model agreement with the nodes.

(d) A directory of INTIB nodes should be prepared for reference purposes and for promoting interaction between the nodes themselves.

18. Preliminary analysis of performance of the nodes (Annex 4) shows that out of a total of 350 inquiries sent to INTIB nodes, 210 replies were received. These replies represent 16% of the average total number of inquiries received per annum. More in-depth analysis will be carried out to address such relevant issues as the time of response (positive or negative), the quality of replies, the strong and weak points of each member of the network. It is clearly understood that the nodes cannot do more than provide a measure of support and a broader base to INTIB activities. INTIB will always remain responsible for responding in good time, and for maintaining the quality of information received by INTIB end-users.

19. It should be emphasised that networking and the cooperation with national nodes/focal points, under formal or informal relations, does not mean the termination of direct delivery to certain countries that have not yet developed the capabilities to set up and operate national units that qualify for operation as focal points/nodes.

Strengthening National Activities

20. Consequently, support to national institutions becomes a matter of high importance in making the services of INTIB more effective. Such support must not be confined to traditional technical assistance for creating or strengthening information institutions. It should now include stimulation of the development of national industrial information policies; the training of industrial information specialists, both in bibliographic and extension-oriented information dissemination; and generally in the promotion of increased use of industrial information in national activities and particularly in forging stronger links with decision-making processes.

21. Advisory services will continue to be provided to developing country institutions and policy makers on technological information in order to make INTIB services more effective. This will be an activity distinct from, and complementary to, technical assistance as provided by the Department of Industrial Operations, in the sense that institutions which no longer receive technical assistance would still be guided by UNIDO and substantive contacts

kept with them. Such contacts could also generate new requests for technical assistance. Training workshops for INTIB focal points/nodes will also be considered. Model systems for information management at the enterprise level will also be developed and disseminated.

22. One specific exercise in networking was carried out through the first phase of the IDDA project. In 1985, INTIB established a sub-regional network in Africa consisting of 10 countries, viz. Egypt, Kenya, Nigeria, Tanzania, Zambia, Algeria, Cameroon, Ivory Coast, Senegal, and Tunisia. Prior to formation of the sub-network, a national expert carried out a survey of the national scene in order to advise on strengthening national information systems and services for his country by providing answers to these questions:

- what are the existing and potential national information systems, services and networks?
- who are the existing and potential users of industrial information?
- what is the nature of information needs and services required by INTIB users?
- what are the man-power requirements and training needs for the national information systems?

Next the national experts, together with a UNIDO field mission team, recommended 67 national nodes in the 10 countries, viz. 5 in Algeria, 6 in Cameroon, 4 in Egypt, 6 in Ivory Coast, 12 in Kenya, 6 in Nigeria, 5 in Senegal, 10 in Tanzania, 4 in Tunisia, 9 in Zambia.

23. INTIB sub-network in Africa consists of those national nodes through which the secretariat already started network activities. Since a strong plea was received by the member states through INTIB's field mission for the use of micro-computers compatible with IBM PC hardware and for application of ISIS the African sub-network software package for micro-computers, INTIB is planning, within a second phase of IDDA project in 1986/1987, to supply ten IBM compatible PC's; one for each country together with the same mini-micro CDS/ISIS software, same data diskettes of INTIB/IDA and LINK (two of UNIDO's data bases) so as to be compatible with the system in INTIB Headquarters, while demonstrating at the same time INTIB information processing capabilities to the users. Also the heads of the sub-network focal points will be trained on how to utilize the network system, and how to handle information using a PC and its software.

Utilisation of Modern Methods of Information Processing

24. The adoption of up-to-date methods of information processing has obviously become a vital necessity. Some countries have adopted such methods at national levels and would like to have on-line connections with INTIB. At the other end of the spectrum, there are countries which do not have institutional infrastructures or financial or man-power resources to adopt such methods. In between there are countries which could in future have, within their national information institutions, some data storing and processing capability through a personal computer which can be connected on-line to UNIDO. The medium-term programme has therefore to give attention to widespread adoption of EDP methods in INTIB and also to the development of systems which can ensure on-line access to developing countries.

25. Electronic data processing falls within four modules of activities:

(a) Linkage with sources of information on-line so that access should be available from INTIB (as distinct from the Library) to data bases on technologies available in the public domain as well as to commercially-available technologies. Currently, INTIB is examining different types of on-line services which will facilitate search and also enable access to more than just bibliographic information.

(b) The second module of activity relates to the information to be stored and, if so, what type of INTIB data bases should be created, e.g. IDA, LINK and the data base on technology suppliers.

(c) The third module relates to providing on-line access to users in developing countries. A beginning could be made based on the request of certain countries in Africa. On-line connection will be established between selected African countries and INTIB under the IDDA project currently under implementation. (para. 23) The infrastructure in INTIB will have to be strengthened suitably for this purpose.

(d) The fourth module relates to the preliminary elaboration of possible interconnection between data bases in UNIDO.

26. A feasibility study on the application of modern information technologies in INTIB is presently being finalised, detailing all work requirements for improving the effectiveness of INTIB databases. This is based on an integrated approach to the computerisation requirements for INTIB. It suggests that the best solution for meeting current and medium term requirements is the use of microcomupter technology as a compliment to the continued use of the mainframe. Each of the two hardware alternatives will be used for the purposes it best serves, based on the following guidelines:

(a) Stabilise the cost of mainframe utilisation by limiting it to the storage of large volume INTIB databases, and the production of large volume printouts.

(b) Use the services of EDPS for back-up and recovery of INTIB databases.

(c) Handle all department-dependent processing locally through a network of microcomputers.

(d) Integrate word processing and data processing.

(e) Resort to electronic means to expedite internal and external communication.

(f) Expand on-line access to international databases.

Enhancing Ongoing Activities

27. Publication of the technology profiles will be continued, but on a selective basis, concentrating in particular on technologies of particular interest to developing countries and on newly-developed technologies. In other words, no attempt will be made to cover the whole range of technological options, but those which need to be highlighted for the attention of the developing countries will be selected.

28. Activities relating to publication of information packages will be continued since they have proved their usefulness. However, the following points will be kept in mind:

(i) standardization of format;

(ii) sharper focus;

(iii) provision for up-dating;

(iv) subcontracting work to nodes if this proves to be cost effective without jeopardising quality.

III - Proposed New Activities Proposed

Information on Available Technologies and Suppliers

29. A new activity concerning information on technologies available and their suppliers (TNC's, Small and Medium Industries, East, West, South - etc.) will be initiated. Enterprises in developed and developing countries will be invited to provide information in a standard format on technologies they could supply. Inclusion, or provision, of information on a specific item will not imply a recommendation by UNIDO, nor an evaluation by it. All the information will be computerized and disseminated in the form of tapes, or in the form of specific written information, if so requested. A system for this purpose is being developed. Technology supplying enterprises may be asked to pay for joining this service. Special provision will have to be made for incorporating technologies from developing countries, including information which is being compiled under the Industrial Technological Information Exchange Mechanism (ITIEM) programme. Special emphasis may also be placed on technologies for small scale industry. This database will fill an obvious gap in information on available technologies, since no other service is available at present with the coverage envisaged. It is hoped that something like 50,000 technologies will be included. A proposed format is presented to the Advisory Group for review and comment, as well as on such other relevant issues as how to obtain this information, on classification, methods of access, etc.

Sectoral Dossiers

30. A pilot dossier in loose leaf form has been prepared on technological developments in the iron and steel industry. In the next biennium, at least 10 other sectors should be covered. Typically, a dossier will contain:

(a) sources of information
(b) hard information, including information on the impact of new technologies.

The draft dossier is presented to the Advisory Group for review and comment. The dossiers may be computerized and tapes/diskettes made available on request. INTIB activity on "Guide to Sources of Information" will then be phased out.

Small Scale Industry Information System

31. An information system relating specifically to the development of small industry could be built up as a distinct part of INTIB. It would pull together the multitude of information availabl from, and needed by, development financing institutions in matters relating to technology choices and linkages with industrial financing institutions. This could start as a pilot operation of the Technological Information Exchange Network (TIEN) proposed and discussed in the Preparatory Meeting of Directors of Industrial Development Fianance Institutions (IFDI) held for this purpose. The views of the Advisory Group on the distinguishing features of such a specialised system are invited.

Energy Information System

32. UNIDO has been paying particular attention for some time now to the issues relating to energy for industry, and industries for energy. It has also been cooperating with UNESCO in this field. A UNIDO "Energy Information System" has been established in the past for the systematic handling of the sizable information made available, particularly on energy conservation in industry. It is felt that maintaining and updating this system and coordinating such activities in UNIDO will be of considerable help in answering several inquiries on energy-related matters in industrial development.

INTIB Bulletin

33. This is essentially a vehicle for exchanging information and experiences amongst members of INTIB network. It should strengthen its activities and keep the members informed of new sources of the information sought by entrepreneurs in developing countries. The first issue is presented to the Advisory Group for review and comment.

Utilisation of Inexpensive Communication Systems

34. For further improvement of the Industrial Inquiry Service in the near future, INTIB intends to experiment with information delivery system using the packet satellite (PACSAT) project, which is aiming at improving quality and speed, while reducing the cost of information transfer to end-users. This will be carried out in close co-operation with the Vienna International Amateur Radio Club (VIARC) and the Volunteers in Technical Assistance (VITA).

35. PACSAT is a digital communications mode in amateur radio. It utilises, as an experiement, UoSat-2 satellite which has been in orbit since March 1984 and carries a PACSAT message system prototype, allowing storage and retrieval of up to 120,000 characters of information. It permits a single frequency to be shared by several simultaneous conversations; allows for routine information among stations; uses single frequency, single antenna, single transceiver; allows computers to speak directly to each other; and provides non-real time communications. PACSAT is fast and many users can share the same channel.

Some Related Issues

36. As regards charging a fee for the services rendered, it is felt that the balance of advantage would lie in not charging a fee, considering the complexity involved in administering such a system, including the charging of differential fees, obtaining agreement of the user to pay the fee, receipt and accounting of fees in different currencies and, not least, the nature of INTIB clientele in developing countries.

37. As regards evaluation, the present system of inviting replies to questionnaires sent along with the supply of information should be continued. Other elements will be built into the system so that the usefulness of the services provided by INTIB can be reviewed on a continuous basis.

Annex 1

Twenty Industrial Sectors to be Dealt with by INTIB

Food processing with special emphasis on vegetable oils and fats
Fertilizer
Leather and leather products
Capital goods with special emphasis on energy related equipment and technology
Petrochemicals
Building materials
Fishery industry
Industrial manpower training
Agricultural machinery
Non-ferrous metals
Iron and steel
Pharmaceuticals
Industrial financing
Wood and wood products
Textile and wearing apparel
Electronics
Agro-industry
Low-cost transport
Pulp and paper
Energy: New and renewable sources of energy;
Non-conventional sources of energy;
Energy for rural requirements.

Annex 2

Analysis of Industrial Inquiries 1985

(a) Users

- Small and medium industrial enterprises (36%)
- Government decision-makers (16%)
- International organizations (10%)
- R&D institutions (10%)
- Information service centres (7%)
- Engineering and consulting firms (7%)
- Development banks (6%)
- Universities (4%)
- Others (4%)

(b) Industrial Sectors (ISIC)

- Industrial Chemicals/Petrochemicals/Pharmaceuticals (22%)
- Agro-industries/Food processing (22%)
- Capital goods/Fabricated metal products (16%)
- Non-metallic minerals (7%)
- Textile/Leather products (5%)
- Pulp and paper (4%)
- Others (24%)

(c) Type of Inquiry

- Manufacturing processes and know-how (42%)
- Equipment/Machinery suppliers (39%)
- R&D activities (10%)
- Others (9%)

(d) Region

- Asia and Pacific (35%)
- Africa (28%)
- The Americas (17%)
- Arab States (11%)
- Europe (9%)

Annex 3

INTIB National Nodes

INTIB national nodes now consist of Research and Development Institutions (30%), Professional Organizations (20%), Technology Transfer Promoters (20%), Industrial and Technical Information Service Centres (12%), Universities (7%), Engineering Consulting firms (5%), Development Banks (2%), International Organizations (2%). By subject, 23% of national nodes are specialized in agro-industries and food processing, 21% in capital goods and fabricated metal products, 14% in industrial chemicals/petrochemicals/ pharmaceuticals, 10% in textile and leather goods, 9% in pulp and paper, while 14% are multi-sectoral.

Annex 4

Performance of INTIB National Nodes (1985-1986)

Sectorally, the results were as follows:

Sector	No. of Inquiries Referred to Nodes	No. of Replies	No. of Replies/ Total INTIB Inquiries (%)
Chemicals/Petrochemicals/ Pharmaceuticals	61	30	10.0%
Agro-industries/ Food processing	80	50	17.5%
Capital goods/ Fabricated Metal products	69	45	21.6%
Non-metallic minerals	14	10	11.0%
Textile and leather goods	30	23	35.4%
Pulp and paper	21	10	19.2%
Others	83	42	13.5%

Regionally, 110 replies to 166 inquiries came from Asia and the Pacific, 10 out of 18 from Africa, 33 out of 50 from the Americas, 40 out of 78 from Europe, 13 out of 19 from Arab States. Replies from Asia and the Pacific amounted to 52% of the total number of replies received.

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REPORT*

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Introduction

1. The Second Meeting of the Advisory Group of Industrial and Technological Information Bank (INTIB) was held at Vienna, Austria, from 1-3 October 1986. The agenda, list of participants and the list of documents are attached as annexes.

2. The objective of the Second Meeting of an Advisory Group of INTIB was to bring together experts to review the elements of a medium-term action programme to re-orient the activities of INTIB in the light of the conclusions of the first Round Table discussion.

3. The Senior Technical Adviser of the Department for Industrial Promotion, Consultations and Technology (DIPCT) of UNIDO welcomed the participants and made organizational remarks.

4. The meeting elected Dr. O.A. El-Kholy as Chairman and Mr. B. Sahay as Rapporteur.

The global industrial information scene

5. The meeting began with a review of country and organizational experiences as shown by a number of papers highlighting the relevant developments achieved by India, the People's Republic of China, Tanzania, Tunisia, and the English-speaking Caribbean countries. The reports reflected a variety of situations regarding needs, capabilities, modes of operation and organizational frameworks. They expressed appreciation of the role of INTIB as a valuable source of information on technology choices and voiced a general satisfaction with INTIB's endeavours to support industrial development in their countries. In each case specific recommendations for a further strengthening of relations between INTIB and its end-users were made and these are reflected in the conclusions and recommendations of the meeting. Reports by a number of private, regional and international organizations involved in the field of industrial information reviewed their recent activities and experiences in this field, particularly in relation to the needs of developing countries, as well as their ongoing plans to develop and enhance such services, with specific emphasis on those aspects relating to INTIB operations. They indicated the desirability of co-operation with INTIB in this field, to the mutual advantage of both parties, and their willingness to do so.

6. The meeting moved next to review recent developments in modern information technology and its impact on industrial development. These highlighted the current trend in the operation of information systems such as INTIB. The main features of such a typical system that INTIB could incorporate were characterized as:

- the combination of both offers and demands in one system and the possibility of automatic matching;

- the compilation of information on markets and business opportunities as well as on technology;

- the availability of the system for access and feeding information both by end users and intermediaries;

- accessibility to UNIDO users around the clock without national or regional limitations;

- the use of appropriate telecommunication and computer technologies is advantageous only in countries with telecommunication linkages;

- the standardization of the product classification system for easy access can be performed in domestic languages if the classification system is available in that particular language;

- the system could eventually be self-supporting. While resources define the scope and quality of the service, there are good reasons to offer these services free of charge.

7. The issues relating to Transborder Data Flow (TDF) were reviewed. The attention of the meeting was drawn to the emerging problems relating to data protection, socio-economic and political considerations, their possible impact on the development of TDF, and to the ongoing world-wide activities to tackle these problems. UNIDO was invited to participate in efforts to formulate international guidelines and treaties for the regulation of TDF as a practical solution to these problems.

8. An analysis of the main elements of cost, speed, quality and coverage of the various information data bases was presented as well as some suggestions, made for more effective utilization of such data bases.

9. The Group next moved on to a detailed discussion of the Secretariat's working paper outlining INTIB's medium-term programme and reached the following conclusions and recommendations:

Conclusions and recommendations

A. Review of past operations and re-orientation of INTIB activities

10. The Group expressed its general satisfaction with the progress made by INTIB over the last year and appreciated the efforts of the Secretariat in continuously developing the scope and quality of INTIB's services, particularly in view of the modest scale of resources made available to it. It made specific recommendations on a number of issues as follows:

Nodes

11. The Group endorsed the approach of the Secretariat in providing a broader base for its operations through a network of focal points/nodes. It reviewed with satisfaction INTIB's experience so far with national focal points and nodes in broadening the scope of correspondents contributing to the Industrial Inquiry Service. It recommended the maintenance of a clear distinction between the national focal points acting essentially as co-ordinating bodies for national efforts and the nodes as the specialized operational units handling industrial information.

12. As regards criteria for selection, those for the focal points are intrinsically different from those applicable to the selection of nodes as defined above. A focal point should have the capability and mandate to co-ordinate national activities and the prestige necessary to ensure the willingness of others to co-operate. There need only be one focal point in each country or region.

13. A node, on the other hand, should have the capability of providing the information needed, as well as the good working relations with industry that would assure its effectiveness. It should also possess the capability for adapting to local needs and conditions, the financial resources needed to sustain its operation, the professional competence, level of information-handling technology and the proper location within the country.

14. It was noted that since the local scene varies considerably from one country to another, the selection of focal points/nodes has to take careful note of the specific conditions within each country. In this context they could be national, sub-regional or regional, as best fits the national and regional situation.

15. The role of focal points/nodes should extend beyond supplementing INTIB's efforts in operating an inquiry service to include:

- linking the provision of information to the solution of industrial problems as an extension service of the node itself, or provide it through other institutions in the country or region;

- promoting INTIB and its utilization by a larger population of users through various means, including training seminars and courses on INTIB operations, and using modern computer-aided instruction methods whenever possible;

- operating as a national depository of UNIDO documents in suitable form to cut down cost of providing information from Vienna;

- it was suggested by some members that the focal points/nodes, might in certain cases undertake a marketing and promotional role to cover part of their expenses.

16. The activities of the focal points/nodes needs to be carefully monitored so as to maintain the quality of INTIB answers and its relevance to the needs of end users. Relations with INTIB would best be clarified by terms of reference particularly if computerized operations are involved. UNIDO, while not directly financing the activities of the focal points/nodes, should help the channel funds to enhance their activities.

17. It was emphasized that the role of such components of a network can only be clearly defined within a national information policy and that such a definition needs to coincide with the views of INTIB.

EDP and inexpensive communication systems

18. The Group welcomed the actions taken by the Secretariat in adopting EDP techniques in INTIB operations, and the impact these will have on the effectiveness of such operations. It noted that these actions need to be complemented by the establishment of on-line communication that would greatly enhance the access of data to and from INTIB, as well as other available techniques for information handling. The Group wished to emphasize that reaping the full benefit of these developments calls for a considerable increase in the resources made available for this purpose. It took note of the proposed actions in the context of an IDDA project for providing hard and software to members of the subregional African network and called upon the Secretariat to report on experiences gained at the next Group meeting.

19. As regards the proposed experiment with inexpensive satellite communication systems, the Group - while welcoming and endorsing this timely initiative - drew attention to the need to give careful consideration to the legal aspects and problems that could arise in co-ordinating with the local PTT authorities. It would review the results of this experiment at its next meeting. The Group also recommended that INTIB should monitor the development projects of other organizations in both fields and co-ordinate with them on these subjects.

B. New initiatives proposed

Technology supply data base

20. The Group welcomed this initiative and particularly the impact it would have on the ability of INTIB to respond quickly and effectively to inquiries from end users. It recommended investigating and benefiting from the experience of similar efforts by other networking systems in close co-ordination with these systems to ensure complementarity and to give the system sharply focused distinguishing features. The Group members reviewed the proposed format and made specific suggestions based on the importance of addressing as clearly and as simply as possible the needs of the inquirer. As regards inclusion in this data base, it was suggested that whenever possible, prestigious national bodies, e.g. chambers of industry and commerce, national engineering organizations, focal points, and government departments, be called upon to review and filter applications for inclusion to ensure a viable level of competence.

Small-scale information system

21. The Group expressed its appreciation of the role such an information system could play in INTIB operations in responding to the needs of small and medium scale industries. It recommended that INTIB be given a specific focus through related activities such as those of financing institutions. For example, INTIB could, at a minimum level, direct inquiries from financial institutions to places where a similar viable business exists. In identifying sources of reliable data on small business performance INTIB should make sure that they are active and enjoy the confidence of the small business. The individual national nodes should assist in identifying such sources.

22. The work of INTIB in producing and disseminating data on scaled-down industrial processes was commended. The Group recommended that this be continued, supplemented with economic performance data accompanying the technical information when making presentations to banks and entrepreneurs.

23. The informal network which operates between banks has probably the most vital effect on deciding whether a project is viable. It would be useful for INTIB to be aware of the kind of information which is circulated through such networks and, if possible, to include such sources of information in its response.

24. As regards updating, it was emphasized that the main purpose here is to confirm the existence of the supplier and the availability of the technology. Here again, national bodies can help considerably in updating.

Sectoral dossiers

25. While commending the effort and quality of the prototype dossier, the Group recommended that the dossiers also highlight experience with the technologies in question in specific conditions and emphasize the sources of information more than the information itself. Selection of sectors should be guided by requests from small- and medium-scale enterprises in developing countries. As regards dissemination, the dossiers should be made available to the nodes and be disseminated through them.

Energy information syster

26. Bearing in mind the information within UNIDO on energy relating specifically to industry, and appreciating the value of maintaining and updating it to the work of INTIB, the Group recommended that the emphasis should be on compiling information on energy-saving technologies particularly for small and medium industries. The collection of relevant case studies, from developing countries in particular, should be given priority and co-ordination with other activities in and outside the UN system be continued.

INTIB bulletin

27. The Group welcomed this as a useful source of information for and on the focal points/nodes as well as on other organizations within a country connected with industry. It recommended that information on UNIDO field projects and contracts be also included, as well as meetings and events that interest the members of the INTIB network six to twelve months ahead of time.

Strengthening national capabilities

28. While appreciating the efforts exerted in this field, it was recommended that in addition:

(a) Training of personnel can be expanded considerably through involvement of the focal points with INTIB/UNIDO providing training material in traditional and CAI form.

(b) A series of guidelines on methodologies for the various aspects of operation be prepared, on the basis of a needs analysis.

(c) INTIB be involved in facilitating the exchange of personnel and experiences between institutions working in similar fields.

29. The Group emphasized that technical assistance in building national capabilities in the field of industrial information is essential for the more effective operation of INTIB and note with satisfaction that UNIDO's policy is to incorporate INTIB as an integral part of technical assistance in this field.

30. The Group noted with great satisfaction the provision of continued advisory services to developing countries as an activity distinct from, and complementary to, technical assistance, in the sense that institutions that were built or strengthened through technical assistance would maintain their viability since UNIDO continues to provide advisory services and substantive contacts are maintained with them. Such contacts could also generate new requests for technical assistance.

Review and evaluation

31. The Group noted that monitoring and evaluation is beginning to be built in the system and strongly recommended that this be based on effectiveness (user satisfaction) of the service rendered rather than on a strict cost/benefit approach which is not valid in the evaluation of any information system. As regards evaluating the mechanics of the INTIB operation and training, the Group recommended that the established procedures and methodologies for evaluation be adapted to the specific needs of INTIB and applied when evaluating such operations. Detailed case studies of the manner in which end users have used and benefited from INTIB services in the long run could also be prepared as a tool for evaluation, as well as an effective means for sensitising decision makers to the value of information in industrial development.

Charging for INTIB services

32. While appreciating the need for considering the levying of charges for INTIB services for reasons, not the least important of which is their contribution to the evaluation of effectiveness, the Group recommended that:

- this be carried out within an overall charging policy for UNIDO as a whole;

- this be guided by the experience and policies of other UN organizations;

- this take into consideration the varieties of situations of users relating, inter alia, to the type of user, the use to be made of the information, the type and volume of information, etc.

C. General recommendations

33. The structure of a medium-term programme for INTIB can be envisaged as follows:

(a) Besides the re-orientation of activities, INTIB needs to operate at a much higher level of activity, including consultative services to industry, and to contribute even more towards increasing the flow of industrial and technological information to developing countries (facilitating access to data bases, access to technological information in the public domain, enlarging the network of correspondents, increasing information on suppliers of technology, interaction with the United Nations and other information systems and promoting the South-South flow of information).

(b) Dissemination of information (collecting and disseminating within UNIDO through the Industrial Development Abstracts and other activities, disseminating to clients, particularly in developing countries, through replies to inquiries and provision of information packages and profiles, forming national focal points and nodes).

(c) Support to national information activities (continuous backstopping of national institutions by provision of information and advice, facilitating formulation and implementation of national industrial information policies, training of personnel, methodologies to promote increased use of information and links to decision-making, establishment of information units in small and medium enterprises or in professional/business organizations of such enterprises).

(d) Evaluation and application of modern information technology (facilitating application of such technology in suitable countries at the national level and designing and equipping INTIB with facilities which will permit interconnection with the national institutions).

(e) The formulation and implementation of a substantial promotion effort that would sensitize more potential users to INTIB services and thus widen the scope of its operations.

34. As regards the content of information, the areas to which priority might be given include: choice of technology (provision of assessed information on the choice of technology is the distinguishing feature of INTIB), information on technology acquisition (sources of technology, information for small and medium industry and information on the impact of new technologies on INTIB sectors (including current awareness information through bulletins to facilitate monitoring of technological change). In this context, INTIB is advised to formulate a methodology for keeping track of changing needs in different countries.

35. Support to national institutions becomes a matter of high importance in making the services of INTIB more effective. Possible support is not confined to technical assistance for creating or strengthening information institutions but comprises the stimulation of development of national industrial information policies, training of industrial information specialists in both bibliographic and extension-oriented information dissemination, promotion of increased use of industrial information in national activities, better understanding of industrial activities in the country and, in particular, strengthening of the links to decision-makers.

36. The present level of INTIB's resources is inadequate for the maintenance of an increasingly effective level of operations in the medium-term as envisaged above. Apart from increased resource allocations from regular sources, efforts may be made to seek additional resources from other sources in accordance with UNIDO policy.

Annex I

Agenda

Wednesday, 1 October 1986

08.30-09.00 hrs.	Registration
09.00-10.30 hrs.	Opening session
	Welcome and organizational remarks
	Senior Technical Adviser, Department for Industrial Promotion, Consultations and Technology
	Election of Chairman and Rapporteur
	Presentation of Participants' Papers
	Topic I: Country and organizational experiences
	Mr. A. Hedda Mr. J.R. Ferreira Mr. X. Wang
10.45-12.30 hrs.	Topic I: (contd.)
	Ms. B. Gumbs Mr. R. Lafond Mr. Padgett
	Topic II: Modern information technology and its impact on the industrial development
	Dr. Schumacher Mr. E. Melrose Ms. A. David Mr. A. Wysocki Mr. L. Zhang Mr. A. Vasarhelyi
14.30-16.00 hrs.	Topic III: INTIB and end users
	Mr. M. Timoulali Mr. B. Sahay Ms. W. Nyonyi Ms. L. Kojic-Bogdanovic
16.15-17.00 hrs.	Presentation of Secretariat background paper
17.00-17.30 hrs.	General discussion of background paper

Thursday, 2 October 1986

Discussion of elements of INTIB medium-term programme

Development of INTIB network (paras. 14-19):
- . The concept of a mix of delivery systems
- . The role of the nodes/focal points
- . Elements of relationship with INTIB
- . Criteria for selection of nodes/focal points
- . Performance evaluation

Development of EDP (paras. 23-26):
- . Review of proposals of feasibility study
- . Review of proposed IDDA second phase project

08.30-12.30 hrs.

Communication systems (paras. 34-35):
- . Feasibility of suggested approaches
- . Relative merits and difficulties expected
- . Other proposals for feasible and effective communication

14.30-17.30 hrs.

Review and discussion of new initiatives:
- . Technology supply data base (para. 29): Content/format - Approaches to compilation and classification of information - Methods of access and dissemination - Charges for inclusion - Definition of contributors and users - Methods of updating - Possible follow-up activities (advisory services, investment and sources of financing - etc.)

- . Sectoral Dossiers (para. 30): Review of draft dossier on iron and steel (content and format) - Approaches to dissemination - Updating procedures - Identification of priority sectors

- . Small-scale industry information system (para. 31): Desirable distinguishing features - Contents and formatting

- . Energy information system (para. 32): Consolidation of existing information - Co-ordination with other energy information systems - Compilation of case studies on conservation in industry

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N.B. Paras. in brackets refer to the Secretariat paper, Elements of INTIB medium-term programme.

INTIB Bulletin (para. 32):
. Review of first issue - Desirable additions and alterations - Distribution policy

Strengthening national activities (paras. 7, 20-22):
. Review of past activities and current orientations - Non-technical assistance support modes of operation - Recommendations for future action

Review and planning activities (paras. 11-13):
. Methodologies and procedures for performance monitoring and evaluation - Streamlining in-house information flow to INTIB - Other recommendations for enhancing these activities

Friday, 3 October 1986

08.30-12.30 hrs. Preparation of draft report

Demonstration of INTIB data bases

15.30-17.30 hrs. Consideration of conclusions and recommendations

Adoption of report

Concluding remarks

Annex II

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Annex III

List of documents

The Agence de Promotion des Investissements and the industrial cooperation - by Mr. A. Hedda

Brazil's experience with industrial information: a project in progress - by Mr. J.R. Ferreira

Preliminary study on China national science and technology information policy: a personal view - by Mr. X. Wang

Impact of modern information technologies on the development of information systems and services in the Caribbean region - by Mrs. B. Gumbs

Action of IDRC in the field of industrial information for developing countries - by Mr. R. Lafond

Technology exchange index of licenceable technology for small and medium sized enterprises - by Mr. B. Padgett

Database business for worldwide trade and technology opportunities - by Mr. Schumacher

Transborder data flow possibilities and constrains - by Mr. A. Wysocki

Evaluation on the status and the role of computers applied to economic information system - by Mr. L. Zhang

Software, new technology and access to data bases in service of industrial information - by Mr. A. Vasarhelyi

Regionalization of INTIB for a better technological and industrial information in Africa - by Mr. M. Timoulali

Ways and means of increasing inflow of industrial and technological information to the end users of INTIB - by Mr. B. Sahay

Ways and means of promoting flow and utilization of industrial and technological information to the INTIB end-users: the Tanzanian experience - by Mrs. W. Nyonyi

Manpower training of industrial information specialists - by Mrs. L. Kojic-Bogdanovic

Elements of INTIB medium-term programme - by UNIDO Secretariat